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**“Large-Scale Scientific Data-Analysis and  
Infrastructure”  
(AFSOR Grant No. F496200-95-1-0081)**

**Final Technical Report  
Dr. Stephen Taylor(P.I.)  
Period: January 1,1995 - December 31, 1995**

**Engineering and Applied Sciences  
California Institute of Technology  
Pasadena, CA 91125**

Final Technical Report AFSOR Grant No. F499200-95-1-0081

The original proposal requested an equipment purchase of two, low cost, Indy workstations, one Indigo 2 work station, and one Onyx high performance graphics work-station, in addition to various back up media.

After the grant was approved a number of changes were necessary to this original proposal. Firstly, we were able to combine this grant with industrial, NSF, and Caltech grants to form a total of \$148,003.30 in addition to the \$272,397.00 provided by the Air Force. This allowed us to purchase not only the Indigo 2 and Indy workstations originally proposed, but an enhanced graphics work-station. We discovered during this process that for visualization of scientific data the original Onyx station proposed did not provide the most cost-effective solution. As a result a Silicon Graphic Power Challenge architecture was purchased instead. In addition the availability of additional funds allowed us to make substantial investments in disk technology obviating the need for substantial investments in back up technology.

As a result of these changes in our plans we have been able to establish a substantially more powerful simulation and visualization environment than was originally envisioned. From its inception this environment has allowed not only complex problem to be visualized but has also allowed our interactions with military and industrial organizations to be enhanced.

This environment has been used extensively in a collaborative effort with the Aerospace Corporation to understand the cause of an on-flight failure related to the Delta II launch vehicle. It has enabled a variety of large scale plasma simulations and activities in collaboration with Intel Corporation and Tegal Corporation aimed at VLSI manufacturing. Edwards Air Force Base has used the facility extensively for large scale Monte Carlo simulations. In addition scientists at Institute for Defense Analysis are using the system extensively for the understanding of Plume-Spacecraft interaction.

This Air Force grant provided a catalyst around which many new activities have been able to flourish. We are sincerely grateful for the investment that was made and encourage you to inspect our world wide web page at <http://www.scp.caltech.edu> to gain an appreciation of the range and quality of the activities we have thus been able to pursue.

## FINAL EQUIPMENT LIST AFORS Grant No. F49620-95-1-0081

Acquisition Date	Equipment	Total Cost	Vendor
<b>ASFOR Grant No. F49620-95-1-0081</b>			
01/05/95	Macintosh Quadra 8100	\$ 4,275.13	Apple Computer
02/01/95	Rack Tower UP Station	\$ 4,032.32	Leibert Assoc.
02/03/95	Proxima Ovation 822 with Video & Remote	\$ 5,146.21	Proxima Corp.
02/09/95	HP LaserJet 4M Printer	\$ 2,899.80	Micro City
02/15/95	Rack Tower UP Station	\$ 4,032.32	Leibert Assoc.
02/20/95	(2)Indy 133 MHZ R4600SC	\$ 2,496.76	Silicon Graphics
02/28/95	Sony-V CDTR500 8M Video Camera	\$ 1,654.95	The Good Guys
08/15/96	Indy 133 MHz R4600SC 80-Bit Color	\$ 1,514.17	Silicon Graphics
12/19/95	Power Challenge X1 Rack Server	\$244,687.85	Silicon Graphics
<b>Northrop Grumman PO No. HHH980C3K</b>			
06/02/95	Indigo2 XZ Graphics 200/100MHZ 64MB	\$ 17,013.65	Silicon Graphics
08/15/95	Indy 133 MHZ R4600SC 80-Bit Color	\$ 4,731.80	Silicon Graphics
<b>NSF Grant No. ASC911-57650</b>			
02/20/95	(2) Indy 133 MHZ R4600SC 8-Bit Color 32MB	\$ 14,159.64	Silicon Graphics
10/15/95	Additional 2X75MHX RR8000 for all Power Challenge System. 2 GB Super Dens Memory 2-way interleave.	\$102,036.37	Silicon Graphics
<b>President's Fund Grant No. PF-405</b>			
10/15/95	Additional 2X75MHX R800 for all Power Challenge System. 2 GB Super Dens Memory 2-way interleave.	\$ 10,061.84	Silicon Graphics